

February 9, 1990

Michael R. Brown
Chevron USA
P.O. Box 5004
San Ramon, CA 94583-0804

Re: Chevron Service Station #90260
21995 Foothill Boulevard
Hayward, California
WA Job #4-310-01

Dear Mr. Brown:

Weiss Associates (WA) collected ground water samples from nine of ten monitoring wells on January 4, 1990 as part of the quarterly ground water monitoring program at Chevron Service Station #90260 in Hayward, California (Figure 1). Monitoring well MW-8 (Figure 2) was not sampled due to the presence of free-floating hydrocarbons. Ground water samples from monitoring wells MW-4, MW-5, MW-6, MW-7, MW-9, MW-11, MW-12 and MW-13 contained benzene, ethylbenzene and xylenes above the California Department of Health Services (DHS) maximum contaminant level (MCL) for drinking water, and toluene above the DHS recommended action level for drinking water. Only trace concentrations of benzene, toluene and xylenes were detected in monitoring well MW-10.

GROUND WATER SAMPLING

Personnel: Jim Martin and Matt Derby
WA Positions: Environmental Technicians
Date of sampling: January 4, 1990

Monitoring/other wells sampled: MW-4, MW-5, MW-6, MW-9, MW-11, MW-12, MW-13

Wells not sampled due to presence of free-floating hydrocarbons: MW-8

Wells not sampled due to being tank backfill wells: MW-1, MW-2, MW-3

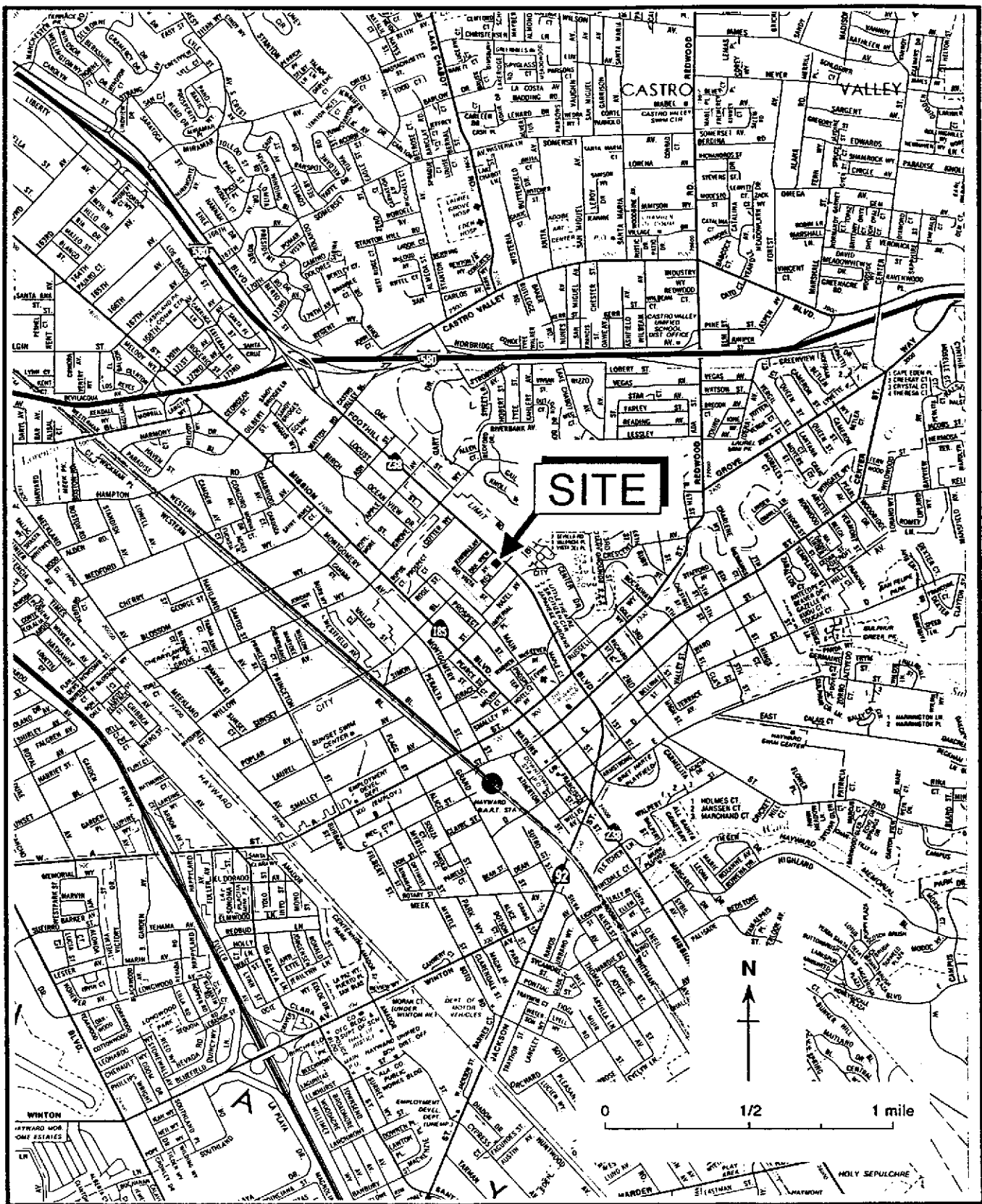


Figure 1. Site Location Map - Chevron Service Station #90260, 21995 Foothill Blvd., Hayward, California

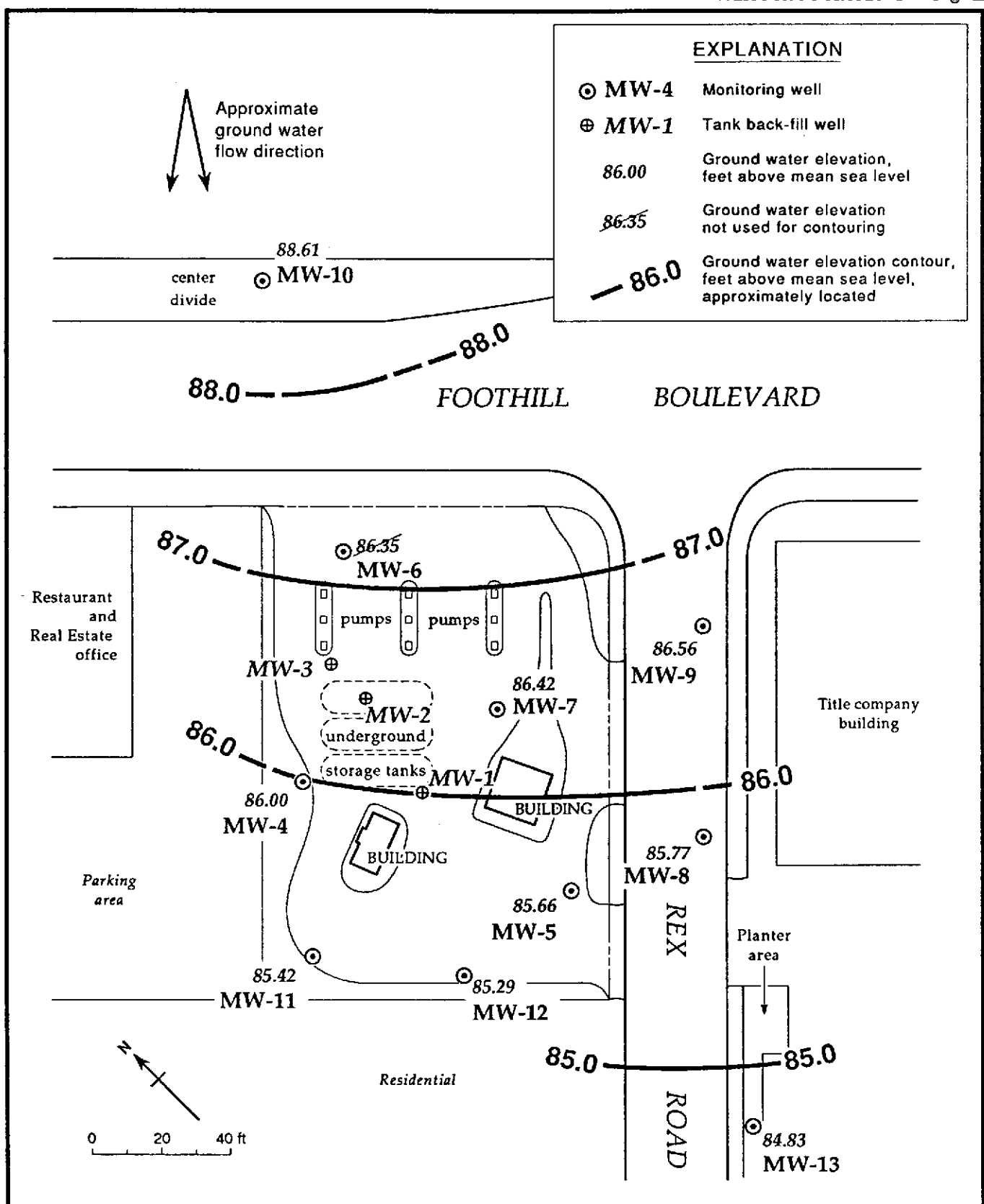


Figure 2. Monitoring Well Locations and Ground Water Elevation Contours - January 4, 1990 - Chevron Service Station #90260, 21995 Foothill Boulevard, Hayward, California

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Method of purging wells:

- Dedicated PVC bailers: all wells

Volume of water purged prior to sampling:

- Wells that were purged of about three well-casing volumes, approximately 8.2 to 27.5 gallons: MW-4, MW-5, MW-10, MW-11, MW-12 and MW-13
- Wells that were purged dry; water level was allowed to recover to within 80 percent of static water level or for at least two hours prior to sampling: MW-6, MW-7 and MW-9

Method of ground water sample collection:

- Drawn through sampling port on side of dedicated PVC bailer: all wells

Method of containing ground water samples:

- 40 ml glass, volatile organic analysis (VOA) vials, preserved with hydrochloric acid and sealed in plastic guard bottles containing activated carbon pellets:

Wells

all wells

All samples were placed in coolers and refrigerated for transport to the analytical laboratory.

Water samples transported to:

- Superior Analytical Laboratory, Inc., Martinez, California

Samples were received by laboratory on January 5, 1990.

Quality assurance/quality control:

- A travel blank was submitted for analysis.
- An equipment blank was not necessary because all bailers are dedicated to specific wells.

Water sample collection records and chain-of-custody forms are included as Attachments A and B, respectively.

GROUND WATER ELEVATIONS

Water levels were measured in: all wells

Water levels were measured on January 4, 1990.

Direction of ground water flow: generally southwestward

Water levels and ground water elevations are presented in Table 1. Ground water elevation contours are plotted on Figure 2.

- Ground water elevations are generally consistent with previous measurements, except for monitoring well MW-6, where the water elevation dropped about 2 ft. Water elevations in this well have exhibited similar fluctuations in previous quarters. The ground water flow direction was not significantly affected by this discrepancy.

CHEMICAL ANALYSES

The ground water samples were analyzed for:

- | | <u>Wells</u> |
|---|--------------|
| • Total purgeable petroleum hydrocarbons (TPPH)
by modified EPA Method 8015: | all wells |
| • Benzene, ethylbenzene, toluene and xylenes (BETX)
by EPA Method 8020: | all wells |

Samples were analyzed by the laboratory on January 15, 1990. The results of the water analyses are presented in Table 2 and the analytic reports are included as Attachment C.

- Isoconcentration maps of TPPH and benzene are included as Figures 3 and 4, respectively.



TABLE 1. Ground Water Elevation Data, Chevron Service Station #90260, 21995
Foothill Boulevard, Hayward, California

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Thickness of Floating Hydrocarbons (ft)	Water Elevation (ft above msl)
MW-4	6/15/88	100.75	12.92	---	87.83
	9/27/88		14.22	---	86.53
	1/05/89		13.20	---	87.55
	4/06/89		12.32	---	88.43
	6/28/89		14.25	---	86.50
	10/03/89		14.75	---	86.00
	1/04/90		14.75	---	86.00
MW-5	6/15/88	99.97	12.30	---	87.67
	9/27/88		13.25	---	86.72
	1/05/89		12.70	---	87.27
	4/06/89		12.22	---	87.75
	6/28/89		13.81	---	86.16
	10/03/89		14.27	---	85.70
	1/04/90		14.31	---	85.66
MW-6	6/15/88	101.43	13.51	---	87.92
	9/27/88		14.56	---	86.87
	1/05/89		13.48	---	87.95
	4/06/89		12.60	---	88.83
	6/28/89		14.58	---	86.85
	10/03/89		13.03	---	88.40
	1/04/90		15.08	---	86.35
MW-7	6/15/88	100.91	12.57	---	88.34
	9/27/88		13.60	---	87.31
	1/05/89		12.98	---	87.93
	4/06/89		12.34	---	88.57
	6/28/89		14.08	---	86.83
	10/03/89		14.53	---	86.38
	1/04/90		14.49	---	86.42
MW-8	1/05/89	99.67	12.02	---	87.65
	4/06/89		11.78	---	87.89
	6/28/89		13.40	---	86.27
	10/03/89		13.84	0.11	85.91*
	1/04/90		13.99	0.10	85.77*
MW-9	1/05/89	101.15	12.63	---	88.52
	4/06/89		12.46	---	88.69
	6/28/89		14.04	---	87.11
	10/03/89		14.61	---	86.54
	1/04/90		14.59	---	86.56

-- Table 1 continues on next page --

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TABLE 1. Ground Water Elevation Data, Chevron Service Station #90260, 21995
Foothill Boulevard, Hayward, California (continued)

Well ID	Date	Top-of-Casing Elevation (ft above msl)	Depth to Water (ft)	Thickness of Floating Hydrocarbons (ft)	Water Elevation (ft above msl)
MW-10	1/05/89	102.36	12.64	---	89.72
	4/06/89		11.38	---	90.98
	6/28/89		13.64	---	88.72
	10/03/89		13.85	---	88.51
	1/04/90		13.75	---	88.61
MW-11	6/28/89	99.97	14.33	---	85.64
	10/03/89		14.61	---	85.36
	1/04/90		14.55	---	85.42
MW-12	6/28/89	99.64	14.10	---	85.54
	10/03/89		14.30	---	85.34
	1/04/90		14.35	---	85.29
MW-13	6/28/89	98.47	13.22	---	85.25
	10/03/89		13.54	---	84.93
	1/04/90		13.64	---	84.83

* = Ground water elevation corrected for free-floating hydrocarbons by the formula: Ground Water Elevation = Top-of-casing elevation - Depth to ground water + (0.8 x hydrocarbon thickness)

TABLE 2. Analytic Results for Ground Water, Chevron Service Station #90260, 21995 Foothill Boulevard, Hayward, California

Sample ID	Sample Date	Analytic Method	Analytical Lab	TPPH/TFHC	B	E	T	X	EDC	EDB	VOCs
-----parts per billion (µg/L)----->											
MW-4	2/05/88	8015/602	B&C	88,000	24,000	1,700	19,000	10,000	---	---	---
	6/15/88	8015/602	B&C	95,000	45,000	2,100	30,000	17,000	---	---	---
	9/27/88	524.2/8240	CCAS	500,000	41,000	<5,000	27,000	16,000	<5,000	<5,000	---
	9/27/88*	524.2/8240	CCAS	88,000	1,200	1,600	4,100	12,000	270	230	---
	1/05/89	8015/8020	SAL	64,000	41,000	2,700	29,000	14,000	---	---	---
	6/28/89	8015/8020	SAL	110,000	34,000	2,400	24,000	13,000	---	---	---
	10/03/89	8015/8020	SAL	240,000	36,000	3,200	31,000	19,000	---	---	---
	1/04/90	8015/8020	SAL	130,000	33,000	2,400	28,000	14,000	---	---	---
MW-5	2/05/88	8015/602	B&C	80,000	16,000	2,600	15,000	17,000	---	---	---
	6/15/88	8015/602	B&C	77,000	42,000	2,500	38,000	16,000	---	---	---
	9/27/88	524.2/8240	CCAS	470,000	39,000	<5,000	32,000	16,000	<5,000	<5,000	---
	9/27/88*	524.2/8240	CCAS	48,000	1,800	1,600	3,500	10,000	410	420	---
	1/05/89	8015/8020	SAL	82,000	44,000	2,400	37,000	14,000	---	---	---
	6/28/89	8015/8020	SAL	80,000	36,000	2,400	24,000	13,000	---	---	---
	10/03/89	8015/8020	SAL	240,000	40,000	2,600	35,000	15,000	---	---	---
	1/04/90	8015/8020	SAL	130,000	37,000	2,400	31,000	13,000	---	---	---
MW-6	2/05/88	8015/602	B&C	53,000	5,100	2,100	4,400	14,000	---	---	---
	6/15/88	8015/602	B&C	33,000	9,200	520	5,500	20,000	---	---	---
	9/27/88	524.2/8240	CCAS	17,000	2,200	1,700	2,800	5,100	130	<10	---
	1/05/89	8015/8020	SAL	37,000	5,000	2,200	3,400	10,000	---	---	---
	6/28/89	8015/8020	SAL	80,000	7,000	2,000	4,100	9,700	---	---	---
	10/03/89	8015/8020	SAL	110,000	8,500	2,600	5,100	14,000	---	---	---
	1/04/90	8015/8020	SAL	59,000	5,200	2,000	2,600	11,000	---	---	---
MW-7	2/05/88	8015/602	B&C	81,000	34,000	2,400	36,000	16,000	---	---	---
	6/15/88	8015/602	B&C	77,000	40,000	1,400	41,000	24,000	---	---	---
	9/27/88	524.2/8240	CCAS	30,000	9,700	400	8,900	4,100	2,600	<10	---
	1/05/89	8015/8020	SAL	96,000	36,000	2,800	38,000	16,000	---	---	---
	6/28/89	8015/8020	SAL	110,000	31,000	2,600	30,000	16,000	---	---	---
	10/03/89	8015/8020	SAL	230,000	34,000	2,400	34,000	15,000	---	---	---
	1/04/90	8015/8020	SAL	150,000	41,000	2,400	40,000	15,000	---	---	---
MW-8	10/27/88	524.2/8240	CCAS	190,000	27,000	2,200	43,000	15,000	<500	<500	---
	1/05/89	8015/8020	SAL	87,000	24,000	3,000	39,000	15,000	---	---	---
	6/28/89	8015/8020	SAL	120,000	22,000	2,900	35,000	16,000	---	---	---
	10/03/89 ^b	---	---	---	---	---	---	---	---	---	---
	1/04/89 ^b	---	---	---	---	---	---	---	---	---	---

--Table 2 continues on next page--

TABLE 2. Analytic Results for Ground Water, Chevron Service Station #90260, 21995 Foothill Boulevard, Hayward, California (continued)

Sample ID	Sample Date	Analytic Method	Analytical Lab	TPPH/TFHC	B	E	T	X	EDC	EDB	VOCs
-----parts per billion (µg/L)-----											
MW-9	10/27/88	524.2/8240	CCAS	50,000	2,000	2,000	9,900	14,000	<500	<500	---
	1/05/89	8015/8020	SAL	55,000	670	3,400	8,900	16,000	---	---	---
	6/28/90	8015/8020	SAL	100,000	510	2,600	4,500	13,000	---	---	---
	10/03/89	8015/8020	SAL	130,000	540	3,200	8,000	17,000	---	---	---
	1/04/90	8015/8020	SAL	83,000	600	2,600	4,600	14,000	---	---	---
MW-10	10/27/88	524.2/8240	CCAS	<500	26	<5	13	<5	<5	<5	---
	1/05/89	8015/8020	SAL	<1,000	<0.3	<0.3	<0.3	<0.3	---	---	---
	6/28/89	8015/8020	SAL	<500	<0.5	<0.5	<0.5	<0.5	---	---	---
	10/03/89	8015/8020	SAL	<500	<0.5	<0.5	<0.5	<0.5	---	---	---
	1/04/90	8015/8020	SAL	<50	0.5	<0.5	1.1	1.7	---	---	---
MW-11	6/28/89	8015/8240	SAL	60,000	36,000	2,500	13,000	12,000	---	---	ND
	10/03/89	8015/8020	SAL	14,000	4,200	240	1,400	1,300	---	---	---
	1/04/90	8015/8020	SAL	82,000	33,000	2,000	11,000	10,000	---	---	---
MW-12	6/28/89	8015/8240	SAL	55,000	30,000	2,900	21,000	19,000	---	---	ND
	10/03/89	8015/8020	SAL	170,000	30,000	2,700	23,000	15,000	---	---	---
	1/04/90	8015/8020	SAL	110,000	24,000	2,300	19,000	12,000	---	---	---
MW-13	6/28/89	8015/8240	SAL	54,000	12,000	1,900	10,000	15,000	---	---	ND
	10/03/89	8015/8020	SAL	120,000	10,000	2,300	10,000	15,000	---	---	---
	1/04/90	8015/8020	SAL	87,000	6,800	2,000	10,000	12,000	---	---	---
Bailer Blank	1/05/89	8015/8020	SAL	<1,000	<0.3	<0.3	<0.3	<0.3	---	---	---
Trip Blank	1/05/89	8015/8020	SAL	<1,000	<0.3	<0.3	<0.3	<0.3	---	---	---
	10/03/89	8015/8020	SAL	<500	<0.5	<0.5	<0.5	<0.5	---	---	---
	1/04/89	8015/8020	SAL	<50	<0.5	<0.5	<0.5	<0.5	---	---	---
DHS MCLs	-	-	-	NE	1	680	100 ^a	1,750	0.5	0.02	V

--Table 2 continues on next page--

TABLE 2. Analytic Results for Ground Water, Chevron Service Station #90260, 21995 Foothill Boulevard, Hayward, California (continued)

Abbreviations:

TPPH = Total Purgeable Petroleum Hydrocarbons
TFHC = Total fuel hydrocarbons
B = Benzene
E = Ethylbenzene
T = Toluene
X = Xylenes
EDC = 1,2-dichloroethane
EDB = Ethylene dibromide
VOCs = Volatile Organic Compounds
--- = Not analyzed
DHS MCLs = Department of Health Services Maximum Contaminant Level
^a = DHS Recommended Action Level for Drinking Water
NE = DHS action level not established
V = DHS action levels vary, depends on compound
ND = Not detected at detection limits of 500 to 2,000 ppb
* = Samples from MW-4 and MW-5 were analyzed a second time after the holding time expired to confirm the anomalously high TFHC reported in the original analysis. Although the samples were preserved with NaHSO₄ and refrigerated, the second analysis was not conducted until 52 days after sample collection.
^b = Not sampled due to the presence of free-floating product in the well

Analytical Laboratory:

B&C = Brown and Caldwell Laboratories of Emeryville, California
CCAS = Central Coast Analytical Services of San Luis Obispo, California
SAL = Superior Analytical Laboratory of San Francisco and Martinez, California

Analytic Method:

524.2/8240 = Fuel Fingerprint Analysis - EPA Method 524.2/8240, Total Fuel and Aromatic Volatile Hydrocarbons (GC/MS)
602 = EPA Method 602, Aromatic Volatile Hydrocarbons (GC)
8015 = Modified EPA Method 8015, Total Fuel Hydrocarbons (GC)
8020 = EPA Method 8020, Volatile Aromatics (GC)

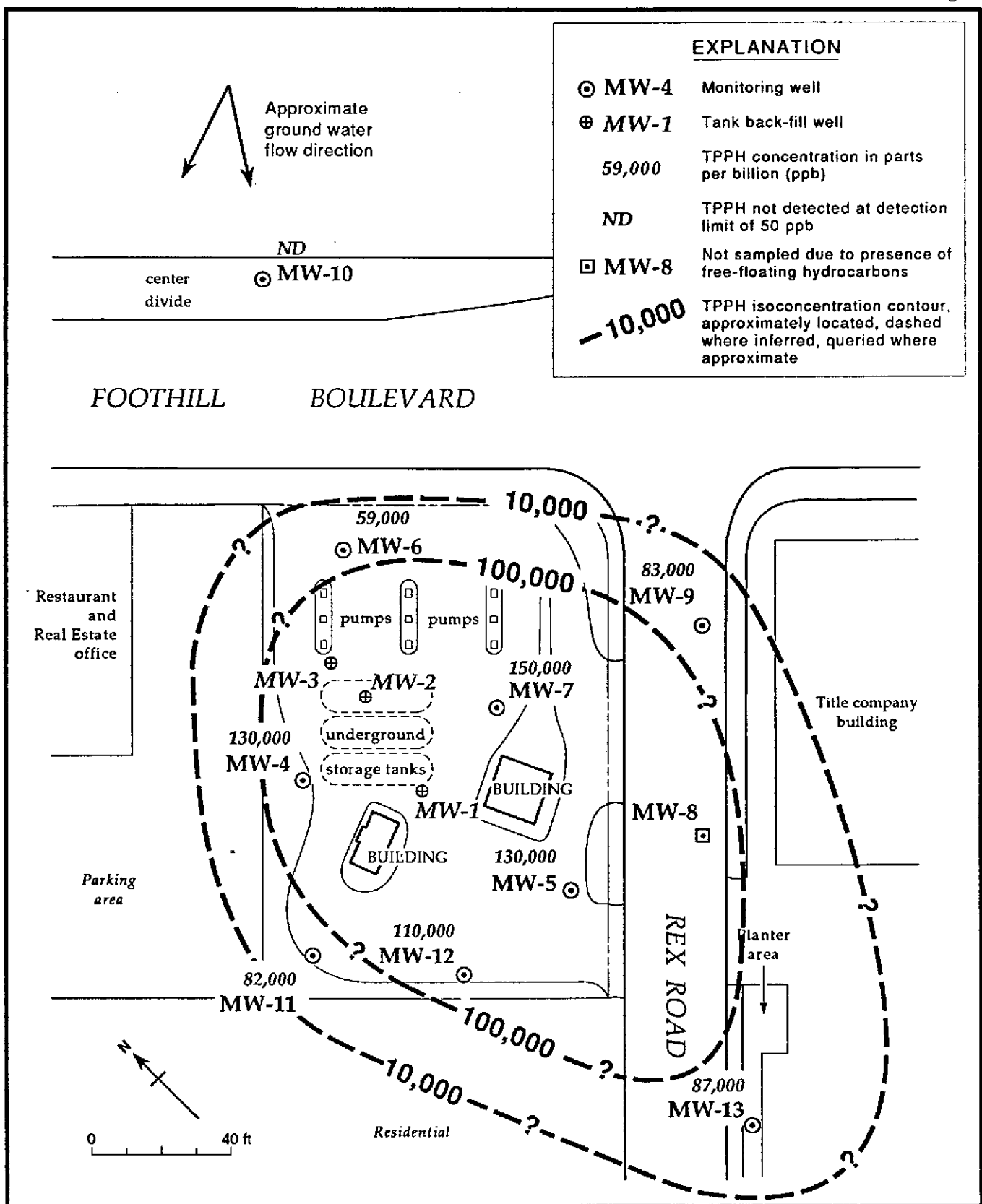


Figure 3. TPPH Isoconcentration Contours - January 4, 1990 - Chevron Service Station #90260, 21995 Foothill Boulevard, Hayward, California



Figure 4. Benzene Isoconcentration Contours - January 4, 1990 - Chevron Service Station #90260, 21995 Foothill Boulevard, Hayward, California

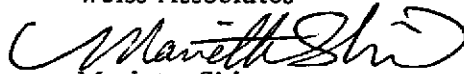
Discussion of analytic results of ground water for this quarter:

- Benzene ethylbenzene, and xylenes concentrations are above the California Department of Health Services (DHS) maximum contaminant level (MCL) for drinking water, and toluene is above the DHS recommended action level for drinking water in all monitoring wells except MW-10.
- TPPH concentrations from all monitoring wells have decreased from previous results, except well MW-11, where TPPH has increased to 82,000 ppb, and MW-10, where TPPH has not been detected for the past five quarters.
- Benzene concentrations from monitoring wells MW-6, MW-12, and MW-13 have decreased from previous results, whereas benzene concentrations from wells MW-7, MW-9, and MW-11 have increased from previous results.
- Ethylbenzene, toluene and xylenes concentrations are generally consistent with previous results.
- Hydrocarbon concentrations from monitoring well MW-10 and benzene concentrations from wells MW-4 and MW-5 are generally consistent with previous results.
- TPPH detection limits have been reduced from <500 ppb to <50 ppb, as requested by the California Regional Water Quality Control Board.

We appreciate the opportunity to provide hydrogeologic consulting services to Chevron and trust that this report meets your needs. If you have any questions, please call Mariette Shin or Jim Carmody.



Sincerely,
Weiss Associates


Mariette Shin
Environmental Technician


Eric M. Nichols
Senior Water Resources Engineer

MMS/EMN:kw
F:\ALL\CHEV\310QMJA0.WP

Attachments: A - Water Sample Collection Records
 B - Chain of Custody
 C - Analytic Reports

**ATTACHMENT A
WATER SAMPLE COLLECTION RECORDS**

WATER SAMPLING DATA

Well Name MW-4 Date 1/4/90 Time of Sampling 1236
 Job Name Chew Hayward Job Number 4-310-01 Initials Vm
 Sample Point Description M (M = Monitoring Well)
 Location NW side of site on landscaping

WELL DATA: Depth to Water 14.75 ft. (static, pumping) Depth to Product — ft.
 Well Depth 21.6 ft. (spec) Well Depth 21.77 ft. (sounded) Well Diameter 4 in.
 Screened Interval — ft. MDL* — ft.
 TOC Elevation — ft. Water Elevation — ft.
 Initial Height of Water in Casing 7.02 ft. = volume 4.6 gal.
3 Casing Volumes to be Evacuated. Total to be evacuated 13.8 gal.

EVACUATION METHOD: Pump # and type — Hose # and type —
 Bailer# and type 3" PVC Dedicated Y (Y/N)
 Other —

Evacuation Time: Stop 1229 14 min
 Start 1215
 Total Evacuated Prior to Sampling 14 gal.
 Evacuation Rate 1 gal. per minute
 Depth to Water during Evacuation — ft. — time
 Depth to Water at Sampling 15.98 ft. 134 time
 Evacuated Dry? NO After — gal. Time —
 % Recovery at Sample Time — Time —
 Sampling Method: Port on dedicated PVC bdr.
 Sample Port: Rate — gpm Totalizer — gal.
 Time —

Formulas/Conversions

r = well radius in ft.
 h = ht of water col in ft.
 $\text{vol. in cyl.} = \pi r^2 h$
 7.48 gal/ft^3
 V_2 casing = 0.163 gal/ft
 V_3 casing = 0.367 gal/ft
 V_4 casing = 0.653 gal/ft
 $V_{4.5}$ casing = 0.826 gal/ft
 V_6 casing = 1.47 gal/ft
 V_8 casing = 2.61 gal/ft

CHEMICAL DATA: Meter Brand/Number —

Calibration: — 4.0 — 7.0 — 10.0

Measured: SC/ μ mhos pH — T°C — Time — Volume Evacuated (gal.)

— — — — —

SAMPLE: Color none Odor Strong
 Description of matter in sample: trace of suspended material

# of Cont.	Sample ID	Cont. Type ¹	V ²	F ³	R ⁴	Preservative (specify)	Analytic Method	T ⁵	LAB
2	010-4	w/v	40ml	N	Y	HCl	GAS/Beta	N	Superior

* = Maximum Drawdown Limit

1 Sample Type Codes: W = Water, S = Soil, Describe Other

Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other

Cap Codes: PT = Plastic, Teflon lined;

2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)

5 N = Normal turnaround, W = 1 week turnaround, R = 24 hour turnaround, HOLD (write out)

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

Well Name MW-5 Date 1/4/90 Time of Sampling 9:54
Job Name Chew Hayward Job Number 4-30-01 Initials MWD
Sample Point Description M (M = Monitoring Well)
Location Near S Corner of Station

8:52 WELL DATA: Depth to Water 14.31 ft. (static, pumping) Depth to Product N/A ft.
Well Depth 11.5 ft. (spec) Well Depth 18.61 ft. (sounded) Well Diameter 4 in.
Screened Interval N/A ft. MDL* N/A ft.
TOC Elevation N/A ft. Water Elevation N/A ft.
Initial Height of Water in Casing 4.30 ft. = volume 2.80 gal.
3 Casing Volumes to be Evacuated. Total to be evacuated 8.42 gal.

EVACUATION METHOD:

Pump # and type _____ Hose # and type _____
Bailer# and type PVC Dedicated Y (Y/N)
Other _____

Evacuation Time:	Stop	929	950	954
	Start	923	942	954

Total Evacuated Prior to Sampling 9 gal.
Evacuation Rate 20.62 gal. per minute

Depth to Water during Evacuation 17.71 ft. 9:31 time
Depth to Water at Sampling 17.80 ft. 9:56 time
Evacuated Dry? Y After 4 gal. Time 9:29
% Recovery at Sample Time NA Time NA
Sampling Method: dedicated press sampling port
Sample Port: Rate gpm Totalizer gal.
Time

Formulas/Conversions

r = well radius in ft.
 h = ht of water col in ft.
 vol. in cyl. = $\pi r^2 h$
 7.48 gal/ft^3
 V_2 casing = 0.163 gal/ft
 V_3 casing = 0.367 gal/ft
 V_4 casing = 0.653 gal/ft
 $V_{4.5}$ casing = 0.826 gal/ft
 V_6 casing = 1.47 gal/ft
 V_8 casing = 2.51 gal/ft

CHEMICAL DATA: Meter Brand/Number:

Calibration:	4.0	7.0	10.0	
Measured:	SC/μmhos	pH	T °C	Time
				Volume Evacuated (gal.)

Measured:	SC/ μ mhos	pH	T $^{\circ}$ C	Time	Volume Evacuated (gal.)

SAMPLE: Color NONE - cloudy Odor Strong odor
Description of matter in sample: cloudy - suspended w/ silt + trace settled silt

[illegible]

* = Maximum Drawdown Limit

1 Sample Type Codes: W = Water, S = Soil, Describe Other

Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other

Cap Codes: PT = Plastic, Teflon lined-

2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)

5 N = Normal turnaround, W = 1 week turnaround, R = 24 hour turnaround, HOLD (write out)

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

80% \Rightarrow DTW 15.17
Weiss Associates November 27, 1989

© Weiss Associates November 27, 1989

HOLD (write out) DTW
80% recovery \Rightarrow 15.38'

o Weiss Associates November 27, 1989

80% Recovery @ D/W is 21

Well Name MW-9 Date 1/4/90 Time of Sampling 11:26
Job Name Chew. Hayward Job Number 2430-01 Initials MWD
Sample Point Description M (M = Monitoring Well)
Location in Rex Rd. near Foothill Blvd corner

9:33 WELL DATA: Depth to Water 14.59 ft. (static, pumping) Depth to Product NA ft.
Well Depth ft. (spec) Well Depth 19.08 ft. (sounded) Well Diameter 4 in.
Screened Interval NA ft. MDL* NA ft.
TOC Elevation NA ft. Water Elevation NA ft.
Initial Height of Water in Casing 4.49 ft. = volume 2.93 gal.
3 Casing Volumes to be Evacuated. Total to be evacuated 8.80 gal.

EVACUATION METHOD: Pump # and type _____ Hose # and type _____
Bailer# and type PVC Dedicated X (Y/N)
Other _____

Evacuation Time: Stop 10:26:30 1037
Start 10:23:30 1035

Formulas/Conversions

r = well radius in ft.

h = ht of water col in ft.

$$\text{vol. in cyl.} = \pi r^2 h$$
7.48 gal/ft³
$$V_2^* \text{ casing} = 0.163 \text{ gal/ft}$$
$$V_{2.5"} \text{ casing} = 0.367 \text{ gal/ft}$$

"V₄" casing = 0.653 gal/ft

$$V_{4 \text{ in casing}} = 0.826 \text{ gal/ft}$$
$$V_6^* \text{ casing} = 1.47 \text{ gal/ft}$$

V8 casing = 2.61 gal/ft

CHEMICAL DATA: Meter Brand/Number, _____

Calibration:	4.0	7.0	10.0
--------------	-----	-----	------

Measured:	SC	umhos	pH	T°C	Time	Volume Evacuated (gal.)
-----------	----	-------	----	-----	------	-------------------------

SAMPLE: Color NONE Odor slight odor
Description of matter in sample: trace fine silt - possible sheen

[illegible]

* = Maximum Drawdown Limit

1 Sample Type Codes: W = Water, S = Soil, Describe Other

Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other

Cap Codes: PT = Plastic, Teflon lined;

2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)

5. N = Normal turnaround, W = 1 week turnaround, R = 24 hour turnaround, HOLD (write out)

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

80% Recovery \Rightarrow DTW c 15.98

WATER SAMPLING DATA

Well Name MW-10 Date 1/4/90 Time of Sampling 1038
 Job Name Chen Howard Job Number 4-310-01 Initials JM
 Sample Point Description M (M = Monitoring Well)
 Location Meridian of Pot Hill Blvd

WELL DATA: Depth to Water 13.75 ft. (static, pumping) Depth to Product ft.
 Well Depth 27.65 ft. (spec) Well Depth 27.59 ft. (sounded) Well Diameter 4 in.
 Screened Interval ft. MDL* ft.
 TOC Elevation ft. Water Elevation ft.
 Initial Height of Water in Casing 13.84 ft. = volume 9 gal.
3 Casing Volumes to be Evacuated. Total to be evacuated 27.1 gal.

EVACUATION METHOD: Pump # and type Hose # and type
 Bailer# and type 3" PVC Dedicated Y (Y/N)
 Other

Evacuation Time: Stop 1033 32 min. having
 Start 1001 10 min.
 Total Evacuated Prior to Sampling 27.5 gal.
 Evacuation Rate 1.25 gal. per minute
 Depth to Water during Evacuation ft. time
 Depth to Water at Sampling 21.28 ft. 1040 time
 Evacuated Dry? NO After gal. Time
 % Recovery at Sample Time Time
 Sampling Method: Put on dedicated PVC BAILER
 Sample Port: Rate gpm Totalizer gal.
 Time

Formulas/Conversions

r = well radius in ft.
 h = ht of water col in ft.
 $\text{vol. in cyl.} = \pi r^2 h$
 7.48 gal/ft^3
 V_2 " casing = 0.163 gal/ft
 V_3 " casing = 0.367 gal/ft
 V_4 " casing = 0.653 gal/ft
 $V_{4.5}$ " casing = 0.826 gal/ft
 V_6 " casing = 1.47 gal/ft
 V_8 casing = 2.61 gal/ft

CHEMICAL DATA: Meter Brand/Number

Calibration: 4.0 7.0 10.0

Measured: SC/ μ mhos pH T°C Time Volume Evacuated (gal.)

SAMPLE: Color NONE Odor NONE
 Description of matter in sample: trace of suspended material

# of Cont.	Sample ID	Cont. Type ¹	V ²	F ³	R ⁴	Preservative (specify)	Analytic Method	T ⁵	LAB
2	010-10	W/V	40	N	Y	HCL	GRB/KCTX	N	Superior

* = Maximum Drawdown Limit

1 Sample Type Codes: W = Water, S = Soil, Describe Other

Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other

Cap Codes: PT = Plastic, Teflon lined;

2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)

5 N = Normal turnaround, W = 1 week turnaround, R = 24 hour turnaround, HOLD (write out)

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

WATER SAMPLING DATA

Well Name MW-11 Date 1/9/90 Time of Sampling 1311
 Job Name Cher. Hayward Job Number 9-310-01 Initials JM
 Sample Point Description M (M = Monitoring Well)
 Location W. corner of site nearest trash dumpsters

WELL DATA: Depth to Water 14.55 ft. (static/pumping) Depth to Product _____ ft.
 Well Depth 19.61 ft. (spec) Well Depth 19.62 ft. (sounded) Well Diameter 4 in.
 Screened Interval _____ ft. MDL* _____ ft.
 TOC Elevation _____ ft. Water Elevation _____ ft.
 Initial Height of Water in Casing 5.07 ft. = volume 3.3 gal.
3 Casing Volumes to be Evacuated. Total to be evacuated 10 gal.

EVACUATION METHOD: Pump # and type _____ Hose # and type _____
 Bailer# and type 3" PVC Dedicated ✓ (Y/N)
 Other _____

Evacuation Time: Stop 1305 _____
 Start 1257 _____ 11 min
 Total Evacuated Prior to Sampling 10 gal.
 Evacuation Rate 9 gal. per minute
 Depth to Water during Evacuation _____ ft. _____ time
 Depth to Water at Sampling 16.43 ft. 1315 time
 Evacuated Dry? NO After _____ gal. Time _____
 % Recovery at Sample Time _____ Time _____
 Sampling Method: Port on dedicated PVC bailer
 Sample Port: Rate 1 gpm Totalizer _____ gal.
 Time _____

Formulas/Conversions

r = well radius in ft.
 h = ht of water col in ft.
 $\text{vol. in cyl.} = \pi r^2 h$
 7.48 gal/ft^3
 $V_2^* \text{ casing} = 0.163 \text{ gal/ft}$
 $V_3^* \text{ casing} = 0.367 \text{ gal/ft}$
 $V_4^* \text{ casing} = 0.653 \text{ gal/ft}$
 $V_{4.5}^* \text{ casing} = 0.826 \text{ gal/ft}$
 $V_6^* \text{ casing} = 1.47 \text{ gal/ft}$
 $V_8 \text{ casing} = 2.61 \text{ gal/ft}$

CHEMICAL DATA: Meter Brand/Number _____

Calibration: _____ 4.0 _____ 7.0 _____ 10.0

Measured: SC/ μ mhos pH T°C Time Volume Evacuated (gal.)

/	/	/	/	/
/	/	/	/	/
/	/	/	/	/
/	/	/	/	/

SAMPLE: Color Whitish Odor moderate
 Description of matter in sample: very small amount of off-white silt

# of Cont.	Sample ID	Cont. Type ¹	V ²	F ³	R ⁴	Preservative (specify)	Analytic Method	T ⁵	LAB
2	010-11	w/v	40ml	N	Y	HCl	GAS/BETX	N	Sepura

* = Maximum Drawdown Limit

1 Sample Type Codes: W = Water, S = Soil, Describe Other

Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other

Cap Codes: PT = Plastic, Teflon lined;

2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)

5 N = Normal turnaround, W = 1 week turnaround, R = 24 hour turnaround, HOLD (write out)

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:



WATER SAMPLING DATA

Well Name MW-12 Date 11/4/90 Time of Sampling 1234
 Job Name Chav. Hayward Job Number 4-310-01 Initials MWD
 Sample Point Description M (M = Monitoring Well)

Location SW corner of property near edge of driveway

WELL DATA: Depth to Water 4.35 ft. (static, pumping) Depth to Product NA ft.

Well Depth NA ft. (spec) Well Depth 1964 ft. (sounded) Well Diameter 4 in.

Screened Interval NA ft. MDL* NA ft.

TOC Elevation NA ft. Water Elevation NA ft.

Initial Height of Water in Casing 5.29 ft. = volume 3.45 gal.

3 Casing Volumes to be Evacuated. Total to be evacuated 10.4 gal.

EVACUATION METHOD: Pump # and type _____ Hose # and type _____

Bailer# and type Deep PVC Dedicated Y (Y/N)

Other _____

Evacuation Time: Stop 1234

Start 1224

Total Evacuated Prior to Sampling 11 gal.

Evacuation Rate ~1.10 gal. per minute

Depth to Water during Evacuation NA ft. _____ time

Depth to Water at Sampling 12.08 ft. 1237 time

Evacuated Dry? NO After _____ gal. Time _____

% Recovery at Sample Time NA Time _____

Sampling Method: Dedicated Press Sampling Port

Sample Port: Rate _____ gpm Totalizer _____ gal.

Time _____

Formulas/Conversions

r = well radius in ft.

h = ht of water col in ft.

vol. in cyl. = $\pi r^2 h$

7.48 gal/ft³

V_2 " casing = 0.163 gal/ft

V_3 " casing = 0.367 gal/ft

V_4 " casing = 0.653 gal/ft

$V_{4.5}$ " casing = 0.826 gal/ft

V_6 " casing = 1.47 gal/ft

V_8 casing = 2.61 gal/ft

CHEMICAL DATA: Meter Brand/Number _____

Calibration: _____ 4.0 _____ 7.0 _____ 10.0

Measured: SC/ μ mhos pH T°C Time Volume Evacuated (gal.)

SAMPLE: Color None Odor Slight odor

Description of matter in sample: Trace fine silt

# of Cont.	Sample ID	Cont. Type ¹	V ²	F ³	R ⁴	Preservative (specify)	Analytic Method	T ⁵	LAB
2	010-12	W/V	40ml	N	Y	HCR	GAS/BETA N		SAL

* = Maximum Drawdown Limit

1 Sample Type Codes: W = Water, S = Soil, Describe Other

Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other

Cap Codes: PT = Plastic, Teflon lined;

2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)

5 N = Normal turnaround, W = 1 week turnaround, R = 24 hour turnaround, HOLD (write out)

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

WATER SAMPLING DATA

Well Name MW-13 Date 1/4/90 Time of Sampling 1142
 Job Name CRU Highway Job Number 9-310-01 Initials LM
 Sample Point Description M (M = Monitoring Well)
 Location In bushes across Rex Rd from site

WELL DATA: Depth to Water 13.64 ft. (static, pumping) Depth to Product ✓ ft.
 Well Depth 17.77 ft. (spec) Well Depth 17.76 ft. (sounded) Well Diameter 4 in.
 Screened Interval ✓ ft. MDL* ✓ ft.
 TOC Elevation ✓ ft. Water Elevation ✓ ft.
 Initial Height of Water in Casing 4.12 ft. = volume 2.7 gal.
3 Casing Volumes to be Evacuated. Total to be evacuated 8.1 gal.

EVACUATION METHOD: Pump # and type ✓ Hose # and type ✓
 Bailer# and type 3" PVC Dedicated Yes (Y/N)
 Other ✓

Evacuation Time: Stop 1116 1135 12 min
 Start 1111 1126

Total Evacuated Prior to Sampling 8.2 gal.

Evacuation Rate 0.7 gal. per minute

Depth to Water during Evacuation ✓ ft. ✓ time

Depth to Water at Sampling 14.67 ft. 1146 time

Evacuated Dry? YES After 5 gal. Time 1116

% Recovery at Sample Time ✓ Time ✓

Sampling Method: Port on dedicated PVC Bailer

Sample Port: Rate ✓ gpm Totalizer ✓ gal.

Time ✓

Formulas/Conversions

r = well radius in ft.

h = ht of water col in ft.

vol. in cyl. = $\pi r^2 h$

7.48 gal/ft³

V_2 " casing = 0.163 gal/ft

V_3 " casing = 0.367 gal/ft

V_4 " casing = 0.653 gal/ft

$V_{4.5}$ " casing = 0.826 gal/ft

V_6 " casing = 1.47 gal/ft

V_8 casing = 2.61 gal/ft

CHEMICAL DATA: Meter Brand/Number ✓

Calibration: ✓ 4.0 ✓ 7.0 ✓ 10.0

Measured: SC/ μ mhos pH T°C Time Volume Evacuated (gal.)

✓	✓	✓	✓	✓
✓	✓	✓	✓	✓
✓	✓	✓	✓	✓
✓	✓	✓	✓	✓
✓	✓	✓	✓	✓

SAMPLE: Color NONE Odor NONE
 Description of matter in sample: Trace of suspended material

# of Cont.	Sample ID	Cont. Type ¹	V ²	F ³	R ⁴	Preservative (specify)	Analytic Method	T ⁵	LAB
2	010-13	w/v	4000	N	Y	H ₂ O	GAS/BETA	N	Syring

* = Maximum Drawdown Limit

1 Sample Type Codes: W = Water, S = Soil, Describe Other

Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other

Cap Codes: PT = Plastic, Teflon lined;

2 = Volume per container, 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)

5 N = Normal turnaround, W = 1 week turnaround, R = 24 hour turnaround, HOLD (write out)

ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

TRAVEL BLANKS

WEISS ASSOCIATES



WATER SAMPLING DATA

Well Name _____ Date 1/4/89 Time of Sampling 12:53
 Job Name Chav. Haywood Job Number 4-310-01 Initials MWD
 Sample Point Description TRAVEL BLANKS (M = Monitoring Well)

Location _____

WELL DATA: Depth to Water _____ ft. (static, pumping) Depth to Product _____ ft.
 Well Depth _____ ft. (spec) Well Depth _____ ft. (sounded) Well Diameter _____ in.
 Screened Interval _____ ft. MDL* _____ ft.
 TOC Elevation _____ ft. Water Elevation _____ ft.
 Initial Height of Water in Casing _____ ft. = volume _____ gal.
 _____ Casing Volumes to be Evacuated. Total to be evacuated _____ gal.

EVACUATION METHOD: Pump # and type _____ Hose # and type _____
 Bailer # and type _____ Dedicated _____ (Y/N)
 Other _____

Evacuation Time: Stop _____ Start _____
 Total Evacuated Prior to Sampling _____ gal.
 Evacuation Rate _____ gal. per minute
 Depth to Water during Evacuation _____ ft. _____ time
 Depth to Water at Sampling _____ ft. _____ time
 Evacuated Dry? _____ After _____ gal. Time _____
 % Recovery at Sample Time _____ Time _____
 Sampling Method: _____
 Sample Port: Rate _____ gpm Totalizer _____ gal.
 Time _____

Formulas/Conversions

r = well radius in ft.
 h = ht of water col in ft.
 $vol. in cyl. = \pi r^2 h$
 $7.48 gal/ft^3$
 $V_2"$ casing = 0.163 gal/ft
 $V_3"$ casing = 0.367 gal/ft
 $V_4"$ casing = 0.653 gal/ft
 $V_{4.5}"$ casing = 0.826 gal/ft
 $V_6"$ casing = 1.47 gal/ft
 V_8 casing = 2.61 gal/ft

CHEMICAL DATA: Meter Brand/Number _____
 Calibration: _____ 4.0 _____ 7.0 _____ 10.0
 Measured: SC/ μ mhos pH T°C Time Volume Evacuated (gal.)

SAMPLE: Color NONE Odor N/A
 Description of matter in sample: NONE

# of Cont.	Sample ID	Cont. Type ¹	V ²	F ³	R ⁴	Preservative (specify)	Analytic Method	T ⁵	LAB
2	010-21	W/V	Y	N	Y	HCL?	GAS+DET X	N	SAL

* = Maximum Drawdown Limit
 1 Sample Type Codes: W = Water, S = Soil, Describe Other
 Container Type Codes: V = VOA/Teflon Septa, P = Plastic, C or B = Clear/Brown Glass, Describe Other
 Cap Codes: PT = Plastic, Teflon lined;
 2 = Volume per container; 3 = Filtered (Y/N); 4 = Refrigerated (Y/N)
 5 N = Normal turnaround, W = 1 week turnaround, R = 24 hour turnaround, HOLD (write out)
 ADDITIONAL COMMENTS, CONDITIONS, PROBLEMS:

SAL TRIP BLANKS 1-2-89 (12-14-89?)

Chain-of-Custody Record

Chevron U.S.A. Inc. P.O. Box 5004 San Ramon, CA 94583 FAX (415) 842-9591	Chevron Facility Number <u>90260 (Hayward)</u>	Chevron Contact (Name) <u>Mike Brown</u>
	Consultant <u>LAB</u> Release Number <u>2564320</u> Consultant Project Number <u>4-310-01</u>	(Phone) <u>(415) - 842-9040</u>
	Consultant Name <u>Weiss Associates</u>	Laboratory Name <u>SUPERIOR Analytical Laboratory</u>
	Address <u>5500 Shellmound St, Emeryville, CA 94608</u>	Contract Number <u>N26 CWC 0240-9-X</u>
	Fax Number <u>(415) - 547-5420</u>	Samples Collected by (Name) <u>Jim Martin + Matt Daby</u>
Project Contact (Name) <u>Mariette Shin</u>	Collection Date <u>11/4/90</u>	Signature <u>Jim Martin</u>
(Phone) <u>(415) 547-5043</u>		

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Analyses To Be Performed										Remarks	
								Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240/Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803					
010-4 ①		2	W	G	1236	HQ	Yes	✓				✓							
010-5 ②		2	W	G	0954	HQ	Yes	✓				✓							
010-6 ③		2	W	G	1107	HQ	Yes	✓				✓							
010-7 ④		2	W	G	1051	HQ	Yes	✓				✓							
010-9 ⑤		2	W	G	1126	HQ	Yes	✓				✓							
010-10 ⑥		2	W	G	1038	HQ	Yes	✓				✓							
010-11 ⑦		2	W	G	1311	HQ	Yes	✓				✓							
010-12 ⑧		2	W	G	1234	HQ	Yes	✓				✓							
010-13 ⑨		2	W	G	1142	HQ	Yes	✓				✓							
010-21 ⑩		2	W	G	1253	HQ	Yes	✓				✓							

Relinquished By (Signature) <u>Jim Martin</u>	Organization <u>Weiss Assoc</u>	Date/Time <u>11/4/90 1445</u>	Received By (Signature) <u>Jim Martin</u>	Organization <u>Weiss</u>	Date/Time <u>11/4/90</u>	Turn Around Time (Circle Choice) 24 Hrs 48 Hrs <u>5 Days</u>
Relinquished By (Signature) <u>Express IT</u>	Organization <u>Express IT</u>	Date/Time <u>11/5 1035</u>	Received By (Signature) <u>Express IT</u>	Organization <u>Express IT</u>	Date/Time <u>11/5 954</u>	
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature) <u>Jim Martin</u>		Date/Time <u>11/5/90 10:00</u>	

**ATTACHMENT C
ANALYTIC REPORTS**

SUPERIOR ANALYTICAL LABORATORY INC.

825 ARNOLD, STE. 2 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 80427
CLIENT: Weiss Associates
CLIENT JOB NO.: 1-310-01

DATE RECEIVED: 01/05/90
DATE REPORTED: 01/16/90

Page 1 of 2

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
80427- 1	010-4	01/04/90	01/15/90
80427- 2	010-5	01/04/90	01/15/90
80427- 3	010-6	01/04/90	01/15/90
80427- 4	010-7	01/04/90	01/15/90
80427- 5	010-9	01/04/90	01/15/90
80427- 6	010-10	01/04/90	01/15/90
80427- 7	010-11	01/04/90	01/15/90
80427- 8	010-12	01/04/90	01/15/90
80427- 9	010-13	01/04/90	01/15/90
80427-10	010-21	01/04/90	01/15/90

Laboratory Number:	80427	80427	80427	80427	80427
	1	2	3	4	5

ANALYTE LIST	Amounts/Quantitation Limits (ug/L)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	130000	130000	59000	150000	83000
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	33000	37000	5200	41000	600
TOLUENE:	28000	31000	2600	40000	4600
ETHYL BENZENE:	2400	2400	2000	2400	2600
XYLENES:	14000	13000	11000	13000	14000

Laboratory Number:	80427	80427	80427	80427	80427
	6	7	8	9	10

ANALYTE LIST	Amounts/Quantitation Limits (ug/L)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	ND<50	82000	110000	87000	ND<50
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	0.5	33000	24000	6300	ND<0.5
TOLUENE:	1.1	11000	19000	10000	ND<0.5
ETHYL BENZENE:	ND<0.5	2000	2300	2000	ND<0.5
XYLENES:	1.7	10000	12000	12000	ND<0.5

SAN FRANCISCO

MARTINEZ

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY INC.

825 ARNOLD, STE. 2 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
Diesel by Modified EPA SW-846 Method 8015
Gasoline by Purge and Trap: EPA Method 8015/5030
ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

Page 2 of 2
QA/QC INFORMATION
SET: 80427

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT

ug/L = part per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:

Duplicate RPD NA

Minimum Detection Limit in Water: 5000ug/L

Modified EPA Method 8015 for Extractable Hydrocarbons:

Minimum Quantitation Limit for Diesel in Water: 1000ug/L

Daily Standard run at 200mg/L; RPD Diesel = NA

MS/MSD Average Recovery = NA: Duplicate RPD = NA

8015/5030 Total Purgable Petroleum Hydrocarbons:

Minimum Quantitation Limit for Gasoline in Water: 500ug/L

Daily Standard run at 2mg/L; RPD Gasoline = 5%

MS/MSD Average Recovery = 100%: Duplicate RPD = 6%

8020/BTXE

Minimum Quantitation Limit in Water: 0.50ug/L

Daily Standard run at 20ug/L; RPD = <15%

MS/MSD Average Recovery = 92%: Duplicate RPD = <5%

Richard Sina, Ph.D.

Laboratory Manager

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